INCH-POUND

MS24187N
15 April 2003
SUPERSEDING
MS24187M
8 March 1993

DETAIL SPECIFICATION SHEET

RELAYS, ELECTROMAGNETIC, 50/25 AMPERES, 1 PDT (N.O./N.C.), TYPE II, NON-HERMETICALLY SEALED

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the relay described herein shall consist of this specification and the latest issue of MIL-PRF-6106.

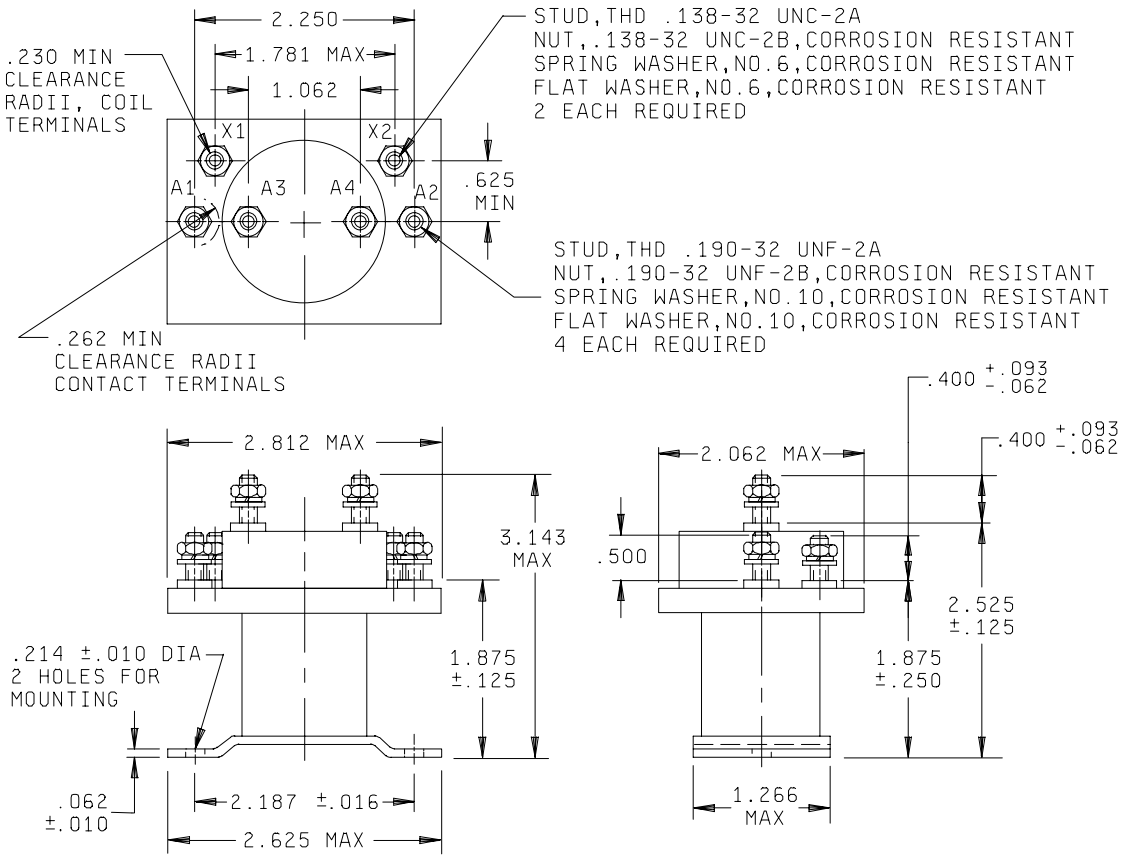
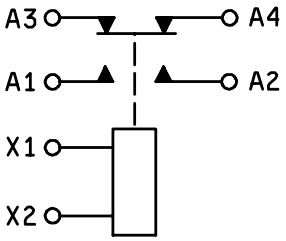


FIGURE 1. Dimensions and configuration.



CIRCUIT DIAGRAM

Inches	mm	Inches	mm	Inches	mm
.010	0.25	.230	5.84	1.875	47.62
.016	0.40	.250	6.35	2.062	52.37
.062	1.57	.343	8.71	2.187	55.55
.093	2.36	.400	10.16	2.250	57.15
.125	3.18	.500	12.70	2.525	64.14
.138	3.51	.625	15.88	2.812	71.42
.190	4.83	1.062	26.97	3.143	79.83
.214	5.44	1.781	45.24		

NOTES:
1. Dimensions are in inches.
2. Unless otherwise specified, tolerance is ±.061 (1.57 mm).
3. Metric equivalents are given for general information only.
4. Additional flat washer may be used for terminal seat.
5. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.
6. Referenced Government documents of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this standard to the extent specified herein.
7. Cadmium or cadmium compounds are prohibited on external hardware. A transition period to non-cadmium hardware is authorized for up to 1 year from the date of this revision.
8. Spring washer on drawing is a spring lock washer.

FIGURE 1. Dimensions and configuration - Continued.

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Dash numbers and general characteristics: See table I.

Contact data:

Load ratings: See table II.

Maximum contact drop, initial: 0.150 V.

After life test: 0.175 V.

Overload current NO: 400 amperes; NC: 200 amperes.

Rupture current NO: 500 amperes; NC: 250 amperes.

Coil data: See table III.

Duty rating: Continuous.

RFI specification: MIL-STD-461 (applicable to coil circuits of ac operated relays).

Electrical data:

Minimum insulation resistance:

Initial: 100 megohms.

After life or environmental test: 50 megohms.

Dielectric strength:

Sea level, 2-5 seconds:

	Initial		After life tests	
	28 V dc	115 V ac	28 V dc	115 V ac
Coil to case	1,250 V	N/A	1,000 V	N/A
Aux contacts	1,250 V	N/A	1,000 V	N/A
All other points	1,250 V	1,250 V	1,000 V	1,000 V

Dielectric strength (altitude): 1 minute.

	Initial	
	28 V dc	115 V ac
Coil to case	500 V	700 V
Aux contacts	500 V	700 V
All other points	500 V	700 V

Environmental characteristics:

Temperature range: -55°C to + 71°C.

Maximum altitude rating: 50,000 feet.

Shock g-level: (NO) 25 g's, (NC) 15 g's.

Duration: 6-9 ms.

Maximum duration contact opening: 2 ms.

Vibration - sinusoidal: See table IV.

Vibration - random: Not applicable.

High shock: Not applicable.

Acceleration: 10 g's.

TABLE I. PIN and general characteristics.

Part number MS24187-	Type	Coil type	Terminal type	Mounting or mating socket	Auxiliary contacts	Maximum weight in pounds
D1 and D2	II	dc	Stud	Bracket	None	0.66

TABLE II. Rated contact load (amperes per pole) case grounded. 1/

Type of load	Life operating cycles x 10^3	28 V dc				115 V ac, 1 phase				115/200 V ac, 3 phase 2/				See appropriate notes
		Main		Aux		Main		Aux		Main		Aux		
		NO	NC	NO	NC	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz	
Resistive	50	50	25			25								
Inductive	10	50	25											
Motor	50	50	25											
Lamp														
Transfer load														3/
Mechanical life reduced current	4/	12.5	6.3			6.3 5/								
Mixed loads	50	5	5			5 5/								

1/ Normally closed contacts shall operate 20 percent of the maximum operating cycles for the motor load test. For resistive load tests, the normally open contacts shall be cycled with the rated dc resistive load and the normally closed contacts shall be cycled with the rated ac resistive load. For no other load tests shall both sets of contacts be cycled simultaneously. It is not required that the relay operate when the contact enclosure is removed. Contact enclosures of MS24187 relays shall be provided with resilient gaskets at mating surfaces and shall prevent entrance of all airborne particles of sand and dust.
2/ Absence of value indicates relay is not rated for three phase applications.
3/ Transfer load indicates relay is suitable for transfer between unsynchronized ac power supplies at rating indicated.
4/ Mechanical life: 100,000 cycles for MS24187-D1 and 500,000 cycles for MS24187-D2.
5/ Normally open only.

TABLE III. Operating characteristics.

PIN MS 24187-	Coil data											Time - milliseconds maximum 2/					
	Coil	Rated			Max		Max pick-up voltage			Hold voltage 2/	Drop out voltage 2/	Operate 3/	Release 4/	Bounce			
														Main		Aux	
		Volts 1/	Freq Hz	Ω Res +10 -15 % at 25°C	Volts	Amp	Normal 2/	High temp test	Cont current test					NO	NC	NO	NC
D1	X1,X2	28	dc	94.2	29	0.36	18	21	22.5	9.0	1.5	20	15	5.0	10	---	---
D2	X1,X2	28	dc	94.2	29	0.36	18	21	22.5	9.0	1.5	20	15	5.0	10	---	---

1/ CAUTION: Use of any coil voltage less than rated coil voltage will compromise the operation of the relay.
2/ Over the temperature range.
3/ With rated coil voltage.
4/ From rated coil voltage.

TABLE IV. Vibration levels (sinusoidal).

PIN MS24187-	Frequency				
	5-10 Hz	10-55 Hz	55-250 Hz	250-500 Hz	500-1,500 Hz
D1, D2	.08 DA	.06 DA	2 g's	2 g's	N/A

Part or Identifying Number (PIN): MS24187- (plus applicable dash number from table I).

Qualification by similarity: See MIL-PRF-6106.

Supersession data: See table V.

TABLE V. Supersession data.

Superseding (new)	Superseded (old)
MS24187-D2	AN3353-1
MS24187-D2	AN3353-2

Custodians:
NAVY - AS
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5945-1196)

Review activities:
Navy - EC